

6000 yards, and 17.5 inches at 24,000 yards. Readers interested in the subject will find in the book many equally instructive comparisons, illustrating the great strides made during recent years in the engineering of ordnance.

W. H. W.

VEGETABLE PROTEINS.

The Vegetable Proteins. By Dr. Thomas B. Osborne. Pp. xiii + 125. With Bibliography. [Monographs on Biochemistry. Edited by Dr. Aders Plimmer and Dr. F. G. Hopkins.] (London: Longmans, Green and Co., 1909.) Price 3s. 6d. net.

THE extent to which the knowledge of the proteins has increased during the last decade is abundantly witnessed by the fact that this is the fourth in this series of biochemical monographs which is devoted to them. Dr. Osborne is undoubtedly the leading authority on the chemistry of the vegetable proteins, and much of the matter considered in this essay was originally made known by his researches. The vegetable proteins are of importance, not only on their own account, but also because of their analogy to the animal proteins, which are being so closely studied at the present time. For this reason, this monograph will be welcomed by animal physiologists.

The author has chosen to treat the subject broadly, and to give a general discussion of the chemical and physical properties of vegetable proteins rather than to describe the individual proteins. Whilst this method of treatment will commend itself to many, it must not be forgotten that there is nothing fundamental to distinguish vegetable from animal proteins as a whole, and there is a danger of setting up some artificial distinction between the two classes.

A clear distinction is made between the proteins of the plant embryo and the reserve proteins of seeds, which so far have been the materials chiefly examined. The reserve proteins are all very characteristic and yield large proportions of some particular amino-acid when hydrolysed. As Pfeffer has pointed out, they are to be regarded as excretory products, for they can take no further part in metabolism, and are lost to the plant. The reserve proteins are far more stable towards chemical reagents than are the living tissue proteins; this property has enabled them to be more drastically purified than most of the proteins of animal origin.

Perusal of the monograph will very rapidly convince the reader of the great experimental difficulties attending work in this field, partly on account of the great tendency to form colloidal precipitates which are difficult to manipulate, and partly because no absolute methods are at present known which enable one protein to be separated from another.

Although, on the whole, it must be admitted we are only just beginning to gain some insight into the chemical nature of proteins, yet a work of this kind, like the other monographs which have preceded it in the series, is so stimulating, and suggests so many possibilities of research, that it requires no other justification for its issue, and it should be in the hands of every earnest student of biochemistry.

We could have wished the author to have been more

exhaustive in his treatment, and to have included, for example, some discussion of Dr. H. T. Brown's recent work. The inter-relationship of the proteins of wheat likewise deserves much fuller discussion.

In conformity with the editors' plan, a bibliography of no fewer than 608 papers, arranged alphabetically according to the authors' names, has been added. The publishers may be congratulated on the improved cover. A further advantage in the style of the series is the possession of the wide margins, which enable the reader to amplify the text by his own notes.

E. F. A.

MORPHOLOGY AND MEDICINE.

Clinical Commentaries deduced from the Morphology of the Human Body. By Prof. Achille De-Giovanni.

Translated from the second Italian edition by John Joseph Eyre. Pp. xii + 436. (London: Rebman, Limited, 1909.) Price 15s. net.

THE object of the author of this work is to lay anew the foundations on which the principles and practice of the physician's art are based. The new foundations are the principles of morphology—morphology as expounded by Haeckel, Gegenbaur, and other great anatomists. Like all enthusiastic reformers, as one may infer from the following passage (p. 206), he has evidently suffered considerably at the hand of his Italian confreres:—

"The academicians (I call them academicians because, according to their way, they have made known that the epithet of colleague is not suitable)—the academicians will not demean themselves by accepting these stupid things. Then there are those who, posing as reforming geniuses, let fly a smile of compassion, and others who, from the Olympus of the hypercritical criticism of which they seem specialists, qualify these things in the presence of the credulous public as works of magic, because they do not seek to comprehend them."

By way of apology for Prof. De-Giovanni's medical confreres, the reviewer must confess that a full comprehension of these new doctrines is not an easy matter. As in some of the more recent novels of Henry James, one is puzzled to know whether the obscurities are due to a lack of sense on the part of the reader or of the writer. At least, from the following passage in the preface, in which Prof. De-Giovanni explains his purpose—and there are passages equally obscure on every page of the book—it is evident that the translator has found an equal difficulty, and, apparently, has abandoned as hopeless the task of making the meaning of the original clear:—

"Therefore I think that every clinical investigation should be conducted on the basis of the individuality morphologically verified, for every other verification of the facts and phenomena in relation to doctrine and practice in their turn in every concrete case individualise themselves, or, to speak better, present themselves, not such as they may be according to the data of general biological experience, but such as they must be in the morphological type of the individual under examination."

Instead of speculating on the exact meaning of the passage just cited, it will be more profitable to follow Prof. De-Giovanni into his clinic, attached to the Uni-

versity of Padua—the university where Harvey was taught the anatomy of the heart well-nigh on three centuries ago—and note the manner in which he applies his morphological doctrines to the treatment of disease. He wishes “to establish whether the heart is adequately proportionate to the body or not.” He applies the following law, which is given here in italics, as in the original (p. 226):—

“If one measures the thickness of the right fist (in left-hand persons of the left), placing the tape-measure on the extremities of the first phalanges of the index and little fingers, which articulate with the respective bones of the metacarpus, and fix the ends of the measure surrounding the joints in such a way that it includes their thickness, one will have the measure of the base of the heart.”

Prof. De-Giovanni's law has several disadvantages; in the first place, it cannot be applied until the patient is dead, and, in the second, it does not hold true even then. Those who are unaware of Prof. De-Giovanni's researches find, in the manner in which the heart responds to its work, a safe indication of whether it is “adequately proportionate to the body or not.”

The scientific value of this book may be judged from the passages which have been cited. It is much to be feared that its doctrines will meet, from English-speaking medical men, the same reception as has been accorded to them by Prof. De-Giovanni's Italian “academicians.”

A. K.

ELEMENTARY BOOKS ON BOTANY.

- (1) *Pronunciation of Plant Names.* (Reprinted from *The Gardeners' Chronicle*.) Pp. v+94. (London: *The Gardeners' Chronicle, Ltd.*, 1909.) Price 1s. net.
- (2) *Botany.* By Prof. J. Reynolds Green, F.R.S. Pp. 128. (Dent's Scientific Primers.) (London: J. M. Dent and Co., n.d.) Price 1s. net.
- (3) *Essentials of Botany.* By Joseph Y. Bergen. Pp. ix+380. (Boston, New York, Chicago, and London: Ginn and Co., n.d.) Price 5s.

(1) THIS is a distinctly useful little book. Although primarily intended to encourage uniformity of pronunciation on the part of those engaged in horticulture, it will also, in these days of neglect of the classics, repay perusal by the professional botanist. Even the latter is occasionally guilty of a false quantity. To take a single example, one frequently hears *Conium* pronounced Co'-ni-um, though Co-ni'-um (cf. the Greek *κωνειον*) is, of course, more correct. But in some cases the compiler has wisely retained Anglicised pronunciations, even though less strictly correct, in deference to established usage. One is tempted to express the wish that more uniformity could be secured in the pronunciation, not only of plant names, but also of botanical technical terms.

(2) Prof. Green's book will probably prove helpful to school teachers and students who have some previous knowledge of the subject. For such it may tend to broaden their conceptions and offer a new point of view. One of the best features of the book is the rather striking and somewhat novel way in which the general adaptation of the plant-body to its

environment is constantly emphasised. For instance, the author points out that the effect of the branching of the plant-body (both shoot and root) is to bring the plant

“into relationship with as large a portion of the environment as possible. Here is clearly an indication or suggestion of an interchange of material between the two.”

But the book is rather seriously marred by a want of accuracy, some carelessness of expression, and a few antiquated views to be found in certain of its portions, particularly those dealing with anatomy, e.g. the descriptions of root-structure on pp. 35 *et seq.* In fact, all through the treatment of the physiological is much more satisfactory than that of the anatomical portions. Some of the illustrations, too, leave much to be desired; indeed, in a few cases the figures are badly drawn and inaccurate. Perhaps the worst are Figs. 20, 22, and 30.

(3) Though not without blemishes, “*Essentials of Botany*” may be characterised as an excellent elementary text-book. It is brightly written, and combines in an attractive manner information with directions for laboratory work. The reading of the book is obviously intended to be accompanied by actual examination of specimens, and throughout the work questions are constantly suggested which the student is left to answer for himself by direct observation. The illustrations are, for the most part, thoroughly good, though in a few cases they are not above criticism. For instance, in Fig. 20 centrosomes are figured (though not named) in a cell from one of the higher plants. Again, the flowers of the willow (Fig. 100) would be improved by the addition of the characteristic nectary.

As many of the plants selected are North American species, the book is naturally more suitable for use in American than in English schools. It may, however, be heartily recommended for use also on this side of the Atlantic, though it is to be regretted that the author did not supplement the use of American plant names by the addition of the Latin names as footnotes. This is only done in some cases (e.g. p. 183, &c.).

We thoroughly endorse Dr. Bergen's opinion that ecology (except in the most elementary form), and also the detailed discussion of evolution, are better omitted from the average school curriculum.

OUR BOOK SHELF.

Geology in the Field. The Jubilee Volume of the Geologists' Association (1858-1908). Edited by H. W. Monckton and R. S. Herries. Part i. Pp. iv+209. (London: Edward Stanford, 1909.) Price 5s. net.

In commemoration of their jubilee, which took place on December 17, 1908, the council of the Geologists' Association decided to bring out a volume dealing with the geology of those parts of England and Wales which have been visited by the Association during the course of its excursions. The volume, which promises to attain a much larger size than was expected, is to be issued in four parts, the first of which is now before us. It is a well-printed work of 209 pages, with four plates and thirty-four text-illustrations; and